WHAT IS CLAIMED IS:

1. A chemical mechanical polishing retaining ring comprising:
a support portion formed of a first material comprising a first polymer; and
a wear portion formed of a second material comprising a second polymer; the first material having an elastic modulus greater than the elastic modulus of the second material.

2. The chemical mechanical polishing retaining ring of claim 1, further comprising a coupling layer formed of a third material and configured for coupling the chemical mechanical polishing retaining ring to a carrier.

3. The chemical mechanical polishing retaining ring of claim 2, wherein the third material comprises a polymer selected from the group consisting of the first polymer and the second polymer.

4. The chemical mechanical polishing retaining ring of claim 1, wherein the first material comprises filler.

5. The chemical mechanical polishing retaining ring of claim 4, wherein the filler comprises between about 5% and about 95% by weight of the first material.

6. The chemical mechanical polishing retaining ring of claim 4, wherein the filler comprises between about 25% and about 60% by weight of the first material.

7. The chemical mechanical polishing retaining ring of claim 4, wherein the filler comprises between about 60% and about 90% by weight of the first material.

8. The chemical mechanical polishing retaining ring of claim 4, wherein the filler is selected from the group consisting of carbon, glass, ceramic, polymer and combinations thereof.

9. The chemical mechanical polishing retaining ring of claim 4, wherein the filler comprises a fibrous material.

10. The chemical mechanical polishing retaining ring of claim 4, wherein the filler is selected from the group consisting of carbon, TiO_2, ceramic, silica, alumina, boron nitride, silicon carbide, aramide, PPS, PEEK, PTFE, polyester and combinations thereof.

11. The chemical mechanical polishing retaining ring of claim 1, wherein the first material comprises a crosslinked polymer.

12. The chemical mechanical polishing retaining ring of claim 1, wherein the wear portion comprises a second filler.

13. The chemical mechanical polishing retaining ring of claim 12, wherein the second filler comprises between about 5% and about 85% by weight of the second material.

14. The chemical mechanical polishing retaining ring of claim 1, wherein the wear portion is configured to contact a polishing surface during a chemical mechanical polishing process.

15. The chemical mechanical polishing retaining ring of claim 1, wherein the wear portion is configured to contact a wafer periphery during a chemical mechanical polishing process.

16. The chemical mechanical polishing retaining ring of claim 1, wherein the wear portion forms an axial end of the chemical mechanical polishing retaining ring.

17. The chemical mechanical polishing retaining ring of claim 1, wherein the first polymer is selected from the group consisting of polyphenylsulfide (PPS), polyethylene terephthalate (PET), polyetheretherketone (PEEK), polyimide (PI), and polybutylene terephthalate (PBT), acetal polyoxymethylene (POM), polyamideimide (PAI), polybenzimidazole (BPI), and combinations thereof.

18. The chemical mechanical polishing retaining ring of claim 1, wherein the second polymer is selected from the group consisting of polyphenylsulfide (PPS),

polyethylene terephthalate (PET), polyetheretherketone (PEEK), polyimide (PI), and polybutylene terephthalate (PBT), acetal polyoxymethylene (POM), polyamideimide (PAI), polybenzimidazole (BPI), and combinations thereof.

19. The chemical mechanical polishing retaining ring of claim 1, wherein the first polymer and the second polymer are formed from a common monomer.

20. The chemical mechanical polishing retaining ring of claim 1, wherein the first material has an elastic modulus greater than about 400,000 psi.

21. A chemical mechanical polishing retaining ring comprising:

a support formed of a first material comprising a first polymer matrix and filler; and

a wear portion formed of a second material comprising a second polymer.

22. The chemical mechanical polishing retaining ring of claim 21, further comprising a coupling layer formed of a third material and configured for coupling the chemical mechanical polishing retaining ring to a carrier.

23. The chemical mechanical polishing retaining ring of claim 22, wherein the third material comprises a polymer selected from the group consisting of the first polymer and the second polymer.

24. The chemical mechanical polishing retaining ring of claim 21, wherein the filler comprises between about 5% and about 95% by weight of the first material.

25. The chemical mechanical polishing retaining ring of claim 21, wherein the filler comprises between about 25% and about 90% by weight of the first material.

26. The chemical mechanical polishing retaining ring of claim 21, wherein the filler comprises between about 25% and about 60% by weight of the first material.

27. The chemical mechanical polishing retaining ring of claim 21, wherein the filler comprises between about 60% and about 90% by weight of the first material.

28. The chemical mechanical polishing retaining ring of claim 21, wherein the filler is selected from the group consisting of glass, carbon, ceramic, and combinations thereof.

29. The chemical mechanical polishing retaining ring of claim 21, wherein the filler comprise fibrous material.

30. The chemical mechanical polishing retaining ring of claim 21, wherein the wear portion comprises a second filler.

31. The chemical mechanical polishing retaining ring of claim 21, wherein the wear portion is configured to contact a polishing surface during a chemical mechanical polishing process.

32. The chemical mechanical polishing retaining ring of claim 21, wherein the wear portion is configured to contact a wafer periphery during a chemical mechanical polishing process.

33. The chemical mechanical polishing retaining ring of claim 21, wherein the wear portion forms an axial end of the chemical mechanical polishing retaining ring.

34. The chemical mechanical polishing retaining ring of claim 21, wherein the first polymer matrix comprises polymer selected from the group consisting of polyphenylsulfide (PPS), polyethylene terephthalate (PET), polyetheretherketone (PEEK), polyimide (PI), and polybutylene terephthalate (PBT), acetal polyoxymethylene (POM), polyamideimide (PAI), polybenzimidazole (BPI), and combinations thereof.

35. The chemical mechanical polishing retaining ring of claim 21, wherein the first polymer matrix comprises a crosslinked polymer.

36. The chemical mechanical polishing retaining ring of claim 21, wherein the second polymer is selected from the group consisting of polyphenylsulfide (PPS), polyethylene terephthalate (PET), polyetheretherketone (PEEK), polyimide (PI), and

polybutylene terephthalate (PBT), acetal polyoxymethylene (POM), polyamideimide (PAI), polybenzimidazole (BPI), and combinations thereof.

37. The chemical mechanical polishing retaining ring of claim 21, wherein the first material has an elastic modulus greater than the second material elastic modulus.

38. A chemical mechanical polishing apparatus for wafer polishing, the chemical mechanical polishing apparatus comprising:

a polishing pad having a polishing surface; and

a substrate carrier head having a substrate backing member and a retaining ring, the retaining ring having a first member comprising a first polymer and a second member comprising a second polymer; the first member having an elastic modulus greater than the elastic modulus of the second member.

39. The chemical mechanical polishing apparatus of claim 38, wherein the first member comprises a filler, the filler comprising between 25%-90% by weight of the first member.

40. The chemical mechanical polishing apparatus of claim 38, wherein the first polymer comprises crosslinked polymer.

41. The chemical mechanical polishing apparatus of claim 38, wherein the second member is configured to contact a polishing surface during a chemical mechanical polishing process.

42. The chemical mechanical polishing apparatus of claim 38, wherein the second member is configured to contact a wafer periphery during a chemical mechanical polishing process.

43. The chemical mechanical polishing apparatus of claim 38, wherein the substrate backing member is coaxially arranged inside the retaining ring forming a space configured to receive a wafer.

44. A semiconductor device formed via a process comprising a polishing step that utilizes a polishing apparatus comprising a polishing pad having a polishing surface and a substrate carrier head, the substrate carrier head having a substrate backing member and a retaining ring, the retaining ring having a first member comprising a first polymer and a second member comprising a second polymer, the first member having an elastic modulus greater than the elastic modulus of the second member.

45. The semiconductor device of claim 44, wherein the material of the first member comprises a filler, the filler comprising between 25%-90% by weight of the first member.

46. The semiconductor device of claim 44, wherein the second member is configured to contact a polishing surface during a chemical mechanical polishing process.

47. The semiconductor device of claim 44, wherein the second member is configured to contact a wafer periphery during a chemical mechanical polishing process.

48. A method of forming a semiconductor device, the method comprising:

providing a substrate wafer;

polishing the substrate wafer with a chemical mechanical polishing apparatus, the chemical mechanical polishing comprising a polishing pad having a polishing surface and a substrate carrier head, the substrate carrier head having a substrate backing member and a retaining ring, the retaining ring having a first member comprising a first polymer and a second member comprising a second polymer, the first member having an elastic modulus greater than the elastic modulus of the second member; and

forming semiconductor circuitry on the substrate wafer.

49. The method of claim 48, wherein the first member comprises a filler, the filler comprising between 25%-90% by weight of the first member.

50. The method of claim 48, wherein the second member is configured to contact a wafer periphery during a chemical mechanical polishing process.

51. The method of claim 48, wherein the first polymer is selected from the group consisting of polyphenylsulfide (PPS), polyethylene terephthalate (PET), polyetheretherketone (PEEK), polyimide (PI), and polybutylene terephthalate (PBT), acetal polyoxymethylene (POM), polyamideimide (PAI), polybenzimidazole (BPI), and combinations thereof.

52. The method of claim 48, wherein the second polymer is selected from the group consisting of polyphenylsulfide (PPS), polyethylene terephthalate (PET), polyetheretherketone (PEEK), polyimide (PI), and polybutylene terephthalate (PBT), acetal polyoxymethylene (POM), polyamideimide (PAI), polybenzimidazole (BPI), and combinations thereof.